AMENDMENTS TO THE CLAIMS

1. Cancelled.

2. Cancelled

3. Cancelled

4. (Currently Amended) A process according to Claim ~~1~~17, wherein the burners
are started and stopped for modifying the circulations of the flue gases in ~~the~~ an enclosure
of the furnace by a computer using mathematical control algorithms based on a thermal
objective defined for the product.

5. (Currently Amended) A process according to Claim 4, wherein the computer
~~is made to control the~~ controls thermal distribution, ~~in particular the~~ selectively in
accordance with longitudinal and/or transverse ~~curve~~ curves of temperature of the
furnace, as a function of the position of ~~the~~ a charge, of its characteristics and of its
progress along the length of the furnace and of the temperature and exit temperature
distribution objective sought for ~~this~~ the product.

6. (Currently Amended)   A process according to Claim 4, wherein the computer
~~is made to control the~~ controls thermal distribution of temperature in the furnace as a
function of a ~~forthcoming~~ manufacturing program on removal from the furnace, and of a
rolling program on exit, so as to optimize the heating characteristics of the products.

7. (Currently Amended)   A process according to Claim ~~1~~17, wherein ~~the~~
~~adjusting~~ adjustment of distribution of power injected into the enclosure ~~is carried out in~~

~~such a way as to favour~~ favors the recuperation of energy in ~~the~~ an entrance zone of the furnace.

8. (Currently Amended) A process according to Claim ~~1~~17, wherein the distribution of ~~the~~ thermal power injected in ~~the~~ longitudinal and transverse ~~direction~~ directions of the furnace can be deduced from measurements made during the rolling operation which follows ~~the~~ reheating.

9. (Currently Amended) A process according to Claim ~~1~~17, wherein ~~the~~ a thermal profile of the furnace and ~~the~~ a longitudinal thermal profile of the product delivered by the furnace are computed automatically by a computer using mathematical models, fuzzy logic systems or algorithms of neuro-predictive type.

10. Cancelled

11. Cancelled

12. Cancelled

13. (Currently Amended) A furnace for reheating iron and steel products according to Claim ~~10~~18, ~~wherein it comprises~~ together with a computer using mathematical control algorithms based on a thermal objective with regard to the product so as to drive ~~the modification~~ modifications of the circulations of the flue gases in the enclosure of the said furnace.

14. (Currently Amended) A furnace for reheating iron and steel products according to Claim 13, ~~wherein it comprises~~ further comprising sensors for supplying the computer with information allowing it to selectively control the ~~thermal distribution, in~~

particular the longitudinal and/or transverse ~~curve~~ curves of temperature of the furnace, as a function of the position of ~~the~~ a charge, of its characteristics and of its progress along the length of the furnace and of the temperature and exit temperature distribution objective sought for ~~this~~ the product.

15. (Currently Amended) A furnace for reheating iron and steel products according to Claim 13, ~~wherein it comprises~~ further comprising sensors of temperature measurements made during a rolling operation subsequent to the furnace, these sensors being linked to the computer which produces therefrom the distribution of thermal power injected in the longitudinal and transverse direction of the furnace.

16. (Currently Amended) A furnace for reheating iron and steel products according to Claim 13, wherein the computer <u>comprises means</u>~~is~~ programmed with mathematical models, fuzzy logic systems or algorithms of neuro-predictive type for determining the thermal profile of the furnace and profile of the product the longitudinal thermal delivered by the furnace.

17.(New) A process for controlling the temperature homogeneity of iron and steel products in a reheat furnace equipped with lateral burners, the process comprising the steps:

provising at least two spread flame lateral burners on each lateral wall of the furnace;

operating the lateral burners in bang bang mode, the operating and stoppage time of each burner adjusted to obtain a desired temperature;

operating the burners at a regime close to or at maximum state,

choosing the order of ignition of the burners to -

a) promote swirling and circulation of the flue gases so as to reduce a hot point of the flame and to obtain a better temperature homogeneity of walls of the furnace and of the products; and

b) reduce the pressure variations in the furnace and in circuits for feeding the burners with fuel and oxidizer.

18. (New) A furnace for reheating iron and steel products comprising:

at least two spread flame lateral burners on each lateral wall of the furnace;

means for operating the lateral burners in bang bang mode wherein operating and stoppage time of each burner is adjusted to obtain a desired temperature;

the operating means further operating the burners at a regime close to or at a maximum state;

means for ordering the ignition of the burners to -

a) promote swirling and circulation of the flue gases so as to reduce a hot point of the flame and to obtain a better temperature homogeneity of walls of the furnace and of the products; and

b) reduce the pressure variations in the furnace and in circuits for feeding the burners with fuel and oxidizer.